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among all its members the advantages of the political union, and to enlarge its basis, by increasing the number of those who understand the value of political rights, and are interested to defend them." But the English public are too insulated in their own importance, and too abstracted in their selfish concerns, to be much impressed with considerations of this nature which the most of them would say had a smack of republicanism. Happy is it that a constitutional history has been written which no Tory can dare to say was penned by a republican.

For our own parts, we shall snatch this occasion of shortly declaring that we are the sincere friends of arbitrary power, with only two provisos, that supreme wisdom, goodness, and activity should be united with power; and secondly, that the king should live for ever. We are, in the same manner, friends to a Republic, on the condition that men are what they ought to be, and that every man is an Aristides. In the mean time, grateful for the personal liberty we enjoy under its protection, we profess our sincere attachment to the British Constitution in all its parts, without hesitating to avow our predilection to its popular or representative part; nor do we think that such predilection will expose us to the charge of republicanism, or deficiency in loyalty, except by those whose loyalty is *outrageous, exclusive and persecuting*. "My party," said Sir William Jones, "is that of the *whole* people" (we hail again our eastern star) "and my principles, which the law taught me, are only to be changed with a change of existence."

The whirl of the French revolution drove men who differed only in degree on constitutional questions, to the farthest limits and utmost extremes of their respective principles; but this centrifugal force abated, they will insensibly and quietly return to a common center of attraction.

We consider such a publication, as that of Mr. Fox, most opportune for this patriotic purpose, and most contributive to this good end; his work is a central point, around which all the friends of constitutional liberty

ought to rally; and it is much to be hoped, that, as one of the best representatives of a free people, is a FREE PRESS, there may soon be a cheap edition published of this invaluable fragment, along with an accurate translation of Barillon's Dispatches, which contain such a fund of reflection for the English reader. Indeed the expensive stile of modern publications has secluded the benefits of liberal literature from the mass of the people as much as if such works were written in a foreign language, and embellishments that can only captivate the *eye* of the reader, have locked up the press from its true proprietor, the public at large. There ought to be a *stereotype* edition of this performance, and upon such a *solid* pediment of public usefulness, and genuine glory, will an imperishable and immortal image of the author be suitably placed. "*Hæc mihi in anibus vestris templa, hæc pulcherrima æfigies et mansura.*" We know not whether the stone for the statue of his great, and, in this life, successful rival, has yet been hewn from the quarry. X.

(To be continued.)

Select Papers of the Belfast Literary Society, Fasciculus first, Memoir second; Relation of an Aerostatic Voyage, by M. Gay Lussac. Belfast, p.p. 14.

MAN, after having made the elements of fire and water subservient to his will, aspired to rise into the air, and "fly on the wings of the wind;" conceiving that he could then overpass the barriers of this lower world, and mount into heaven. So flattering was this idea to the vanity of eccentric genius, that in every age the power of flying seems to have engrossed peculiar attention, and the earliest records of human action give us the names of some bold adventurers who made attempts to possess this new power.

In tedious exile now too long detain'd,
Dedalus languish'd for his native land;
The sea fore-clos'd his flight, yet thus he
said,
Though earth and water in subjection laid,
O cruel Minos, thy dominions be,

We'll go through air, for sure the air is
free.

Then to new arts his cunning thought ap-
plies,

And to improve the work of nature tries.

The final master-stroke at last impos'd,
And now the neat machine completely
clos'd;

Fitting his pinions on, a flight he tries,
And hung, self-balanced, in the beaten
skies.

GARTH'S OVID, B. viii.

At the dawn of experimental philo-
sophy, this art caught the attention
of philosophers, and various attempts
were made by friar Bacon, lord Ba-
con, bishop Wilkins and others to ac-
complish this desirable object; it was,
however, reserved for the eighteenth
century, to attain, by philosophic
principles, the long-wished for power.
When an analysis of the atmospheric
fluids engaged the ingenious chemists
of modern times, Mr. H. Cavendish,
ascertaining in 1766, the weight of in-
flammable air, Dr. Black conceived
that a bag filled with it might rise in
common air, but all his attempts were
unsuccessful. At this enlightened period
when the art of printing conveys ideas
to the utmost extremity of the ci-
vilized world, the discoveries of the
English philosophers could not long
remain unknown to their antagonists
in the peaceful field of science. In
France, two brothers, Stephen and
John Mongolfier, about the middle of
November, 1782, proceeding on the
same principles, raised a bag of silk
paper, by filling it with smoke from
burning paper, fixed to the lower a-
perature. In 1783, Pilatre ascended in
a balloon raised by the same means;
but after various trials of the inconve-
nience of this method, and the unfor-
tunate expedition of Pilatre de Ro-
ziere, and M. Romain, it was given
up, and inflammable air (hydrogen
gas) has been since used. Mr. Charles
and Roberts ascended in December
1783, to the height of 10,500 feet,
Blanchard to 10,000. Although this
new art has been very generally treat-
ed with contempt, the French perse-
vere in regarding it as of importance,
and during the Revolutionary war,
established an Aerostatic Institute,
from whence issued skilful Aeronauts
with balloons for the use of the armies.
"For that of the North, the Balloon was

called Entreprenant; for that of the
Sambre and Meuse, the Céléste; for
that of the Rhine and Moselle, the
Hercule and Intrepide. Coutel, cap-
tain of the Aeronautic corps, was the
man who ascended with the Entrepren-
nant, on the 26th of June, 1794, and
who conducted the wonderful and im-
portant service of reconnoitering the
hostile armies, at the battle of Fleurus,
accompanied by an adjutant and a ge-
neral. He ascended twice on that day,
to observe from an elevation of 440
yards, the position and manœuvres of
the enemy. On each occasion he re-
mained four hours in the air, and, by
means of signals, with flags, carried
on a correspondence with General
Jourdan, the commander of the French
army.

"His intended ascent had been made
known to the enemy, who, at the mo-
ment when the balloon began to take
its flight, opened the fire of a battery
against the aeronauts. The first volley
was directed too low: one ball, never-
theless, passed between the balloon
and the car, and so near the former,
that Coutel imagined it had struck
it. When the subsequent discharges
were made, the balloon had already
reached such a degree of altitude, as
to be beyond the reach of cannon shot,
and the aeronauts saw the balls flying
beneath the car. Arrived at their in-
tended height, the observers, remote
from danger, and undisturbed, viewed
all the evolutions of the enemies, and,
from the peaceful regions of the air,
commanded a distinct and comprehen-
sive prospect of two formidable armies
engaged in the work of death."

London Mon. Mag. vi. 395.

It is not as a warlike instrument
alone that the balloon seems to merit
attention; without its assistance we
could not have so accurate a know-
ledge of the atmosphere; experiments
made on mountains must be ever lia-
ble to error, the purity could not be
ascertained on account of the constant-
ly ascending vapour, the apparent
density must always differ from the
real at the same height, on account of
the heated atmosphere in the neigh-
bourhood of the mountain, and there
are few mountains whose magnetic at-
traction does not affect the compass or
dipping needle. These facts, with

many others, have been more accurately ascertained since the invention of Balloons than we could ever have done without their assistance. Like most other inventions, which, in their earlier stages excite rather the contempt of orderly thinkers, Balloons have occupied too little of the ingenious mechanic's attention, and future ages may receive considerable advantage from this curious invention. An alteration of their present unwieldy form which of all others seems least adapted to move in an oblique direction, to the course of the wind, to an elongated ellipse floating horizontally, would enable the aeronaut by opposing a larger surface, by means of oars or wings, than that of the Balloon in some degree to direct its course. But the greatest impediment to their general utility is the want of the power of suspension to a given period, and until some means be found of easily generating a fresh supply of hydrogen gas, during the course of the journey, this defect must remain. As, "To inflate a Balloon of thirty feet diameter, it will require, agreeably to Mr. Cavendish's experiments, about two ounces and one half of iron for each cubic foot of inflammable air or 2200 pounds of iron to be dissolved, in order to completely fill the machine, and to produce this solution; there will altogether be required an equal weight of concentrated oil of vitriol (sulphuric acid) and six times this weight of water."

Phil. Mag. vol. xv. 20.

M. Lussac mentions that in a former voyage which he had the honour of submitting to the National Institute, that at the height of 2040 toises (about 12,300 feet English) the magnetic force experienced no sensible diminution, and that he was induced to undertake a new ascension, to establish at greater heights this important fact.

Mr. Robertson, during his ascent at Hamburgh, in July 1803, found, at the height of 2600 toises (about 15,700 feet) that the dipping needle seemed to have lost its magnetic virtue*, and

* At the height of 2600 toises, about 15,750 feet, the dipping needle seemed to have lost its magnetic virtue. At 2000 toises, 12,136 feet, electricity only ob-

as we have good reason to rely on Mr. Robertson's accuracy and instruments, we were surprised that so small a difference of height between him and M. Lussac should cause such an apparent difference in the result, and were glad to find that M. Lussac was desirous of verifying by another experiment, his former observation. In the beginning of his relation he gives us an account of the instruments made use of during the present voyage, which would appear to have been constructed with great care; the remainder is taken up with an account of some curious experiments.

"By the observations of the state of the thermometer, it seemed to indicate," says he, "that towards the surface of the earth the heat follows a law, less decreasing than at the height of the atmosphere, and that at greater heights it follows a decreasing arithmetical progression. The motion of the hygrometer was alike subject to a variation which would lead us to think that they were both influenced by the different stratas of air, through which the Balloon passed. From the results of the observation on the magnetic oscil-

lating needle, it was observed when passing through clouds, which appear never to rise above 2000 toises, or about 12,155 feet.

See Robertson's ascent at Ham. July, 1800.

Tillock's *Phil. Mag.* vol. 16, p. 283.

When the thermometer indicated one degree above freezing, and the barometer stood at fifteen inches, Mr. Robertson set at liberty two pigeons which descended with the rapidity of lightning, without moving their wings, and in a plane slightly inclined. When the barometer stood at fourteen, he let off a third pigeon, which having fluttered about for a moment, with difficulty perched on the net-work, and would not quit it. Two butterflies let go at the same time tried to use their wings, but in vain, as the air was too rare; they never quitted the car, and fluttered, but in a very feeble manner. Tinder, exposed to a convex glass, of six inches focus, did not catch fire till the end of some minutes. The rays refracted from the prism no longer exhibited lively and distinct, but weak and confused colours. Weights attached to a spring balance, had lost one half of their gravity.

Mr. Robertson's ascent, Aug. 14, 1800.

Tillock's *Phil. Mag.* 16. p. 371.

lation it appears, "that the magnetic force, like universal gravitation does not experience any sensible variations at the greatest heights to which we can arrive." Now as M. Lussac told us at page vi. that his compass was spoiled, and makes an apology in page ix. for drawing this conclusion, we confess ourselves a little at a loss how to understand him.

At page x. he says, "that at the height of 2314 toises, about 14,000 feet, and 3133, about 18,900 feet, I presented to a small needle, and in the direction of the magnetic force, the inferior extremity of a key; the needle was attracted and then repulsed by the other extremity of the key, a new and very evident proof of the action of terrestrial magnetism." This we can by no means think a correct conclusion, we have little doubt but that if a magnet was carried even beyond the power of the earth's attraction, it would attract iron with an equal power as if placed in immediate contact with the earth, for the magnetic power once communicated to a piece of steel remains for a considerable time, change the position as much as you please; or after fixing the northern end to point south, for many months, it seems equally sensible as if it had remained in the due direction, for the same space of time, though no doubt it is gradually changing its poles.

M. Lussac's last experiment is that which caught our attention most, "At the height of 2353 toises, about 14,250 feet, I opened one of my glass balloons, and at the height of 3405 toises, about 20,560 feet, I opened the second, the air entered each with a hissing noise." "On my arrival at Paris, my first care was employed in the analysis of the air which I brought. All the experiments were made at the Polytechnic School." They prove then that the atmospheric air, and air taken at an elevation of 3405 toises, about 20,560 feet, are identically the same." These experiments tend greatly to confirm those made by Sir John Ingenhouse, and others in England, the air taken by them was but at a small elevation, compared with M. Lussac's, yet as the analysis of each came to the same conclusion, it is very satisfactory. It shows the complete and speedy

diffusion and intermixture of the component parts of our atmosphere, and the wise ordinance of nature to destroy the most noxious vapours, by an almost instantaneous junction of salubrious.

Although we could scarcely have expected to meet with M. Gay Lussac's memoir in its present situation, we must acknowledge, that upon the whole, we have been considerably gratified with its perusal.

Marmion; a Tale of Flodden Field, by Walter Scott, esq. 8vo. p.p. 377; second edition; Edinburgh, Constable; London, Miller, &c 1808, price 12s. boards.

(Continued from page 60. No. I.)

THE second canto presents a new and more interesting scene. Clara de Clare accompanies the abbess of St. Whitby, (with whom she resided) to Lindisfarne, where a chapter was to be held for the trial of Constance and her accomplice. We regret that our limits prevent us from giving, in the words of the poet, his description of the journey of these ladies, and the circumstances which preceded the assembly of this terrible court of judicature. But we should think ourselves inexcusable, did we pass over the trial and condemnation, which are recorded in strains of the most pathetic solemnity. The gloomy vault in which the court is held, the appearance of the judges, the sentence, the execution, all are portrayed with the pencil of a master. The determined, lofty despair of Constance, is finely contrasted with the despicable timidity of her fellow sufferer; and raises in the mind a sympathy for her sufferings, which her former conduct was ill adapted to excite. Through the whole of this scene she appears, like Milton's fallen archangel, majestic, though in ruins.

The discovery of her sex is thus described:

Her sex, a page's dress belied,
The cloak and doublet, loosely tied,
Obscur'd her charms, but could not hide. }
Her cap down o'er her face she drew;
And on her doublet breast,
She tried to hide the badge of blue,
Lord Marmion's falcon crest.
But at the prioress' command,
A monk unlid the silken band,